Watershed Data Pilot Project
Proposed Components and Examples

Purpose of This Document

This document describes the capabilities to be demonstrated by the Watershed Data Pilot Project as currently envisioned. We anticipate changes as this project progresses through the steering committee. However, this document is another step toward clearly articulating how a system could support its users in a manner that also supports the legislative intent for the project.

Overview

There are four major components implied by the goals and objectives currently expressed for the Watershed Data Pilot Project (WDP). These include:

1. Setup and implementation monitoring of existing projects
2. Effectiveness monitoring of existing projects
3. Recovery progress monitoring considering both existing and potential projects
4. General habitat data collection specific to agencies' needs

The first three of these components are described in greater detail below. The last component is more briefly described as its definition is under development by the participating natural resource agencies (WDFW, DOE, and DNR). Together, these four components provide a broad scope for the project and the questions in the RFI. This broad brush is intentional at this point to help us see what possibilities exist. It is likely that the scope will be narrowed as vendor input is received and WDP objectives are further defined and prioritized.

Project Setup and Implementation Monitoring

One proposed component of the WDP is to improve implementation monitoring of habitat restoration/preservation projects through basic project information and tracking. Currently, SRFB funded projects are tracked through the PRISM database at IAC. However, many other types of projects are funded through other sources, including some projects by Conservation Districts, tribes, and others; and these are not currently tracked in any centralized database.

Ideally, the WDP module that is created for implementation monitoring should be compatible with PRISM (which serves as a good example of our needs to track projects) along with the recommendations of the Implementation/Effectiveness Monitoring Sub-committee of the Governor's Forum. At this time, suggested data fields on projects should include:

- project number and other identifying information
- GIS coordinates
- watershed identifiers
- project type
    - examples include acquisition, restoration, education, assessment, or combination
- habitat category
    - examples include access (barriers), flood plain, riparian, sediment, in-stream, water quality, flow, biological processes, lakes, estuaries, near shore
- sponsor (implementer)
- project name
- program manager
- status
- cost
- funding source

They may also include other data fields to be developed at ongoing meetings of the Implementation/Effectiveness Monitoring Sub-committee. The habitat categories are likely the equivalent of the measurable watershed and habitat health factors often referred to in the RFI.

The database will be used to sort projects by any of the data fields; and quantify, graph, and map projects by geographic area, cost, etc. The primary use will be to improve the data on projects in the State of the Salmon report as well as improve tracking of existing projects funded by sources other than the Salmon Recovery Funding Board (SRFB). The technology most applicable to this component is the web-based data repository. The handheld technology could contribute to collection of data on projects and their basic implementation, but it may not be cost effective.

Effectiveness Monitoring

Effectiveness monitoring of habitat projects is another proposed component of the WDP, and could involve the use of handheld data entry devices. The purpose of effectiveness monitoring is to measure whether the project resulted in the desired environmental outcome. Effectiveness monitoring data will vary according to habitat categories addressed by the project (riparian vs. barriers vs. sedimentation, etc.) and can function at different levels of detail (see SRFB 2003a monitoring standards). Level 1 monitoring assesses that the project has been completed according to specifications and remains in place after some defined period of time. Level 2 relates to the biological function of the site. Level 3 monitoring relates to the increase in local fish abundance and is currently only being assessed for SRFB projects that address barriers, channel connectivity,

and in-stream habitat (SRFB 2003a). Levels 1 and 2 monitoring are clearly part of the WDP. Level 3, while an important type of monitoring that would be part of a long term solution, is more complex, expensive, and less prevalent. It is a lower priority for inclusion in the pilot.

A draft example of specific effectiveness monitoring that could take place on a riparian habitat category project is provided below. Data capture in the field could occur before and after treatment by the project, and to compare treated versus untreated areas as per recommendations in the Monitoring and Evaluation Strategy (SRFB 2003b). Some of the metrics in this example will have multiple entries such as plant heights, survival, and temperatures. Level 3 metrics were not included in this example. While this example generally follows the recommendations in SRFB (2003b), other metrics were added. Standardized measures ultimately implemented will be reviewed by the Implementation/Effectiveness Monitoring Sub-Committee.

Example 1: Effectiveness Monitoring Measures for Riparian Projects

Action	Indicator	Metric	Level
Fencing	Length of stream treated	Length	1
	Actively eroding banks	% length	2
	Shade: mean % canopy density	1-17 score	2
	Water quality improvement	Water temperature and others as needed.	2
Plantings	Buffer Size	Length, Width, and Acres	1
	Density	# Plants/Acre	1&2
	Plant Survival	# live, # dead	1&2
	Plant Growth	Height (current vs. planted/growing season)	1&2
	Species Diversity and Conifer Component	# plants by species	2
	Shade: mean % canopy density	1-17 score	1&2
	Actively eroding banks	% length	2
	Long-term LWD recruitment potential	Follow watershed analysis procedure.	2
	Water Quality	Water temperatures at downstream end of site.	2
Invasive Species Control	Species removed	# miles, # acres treated	1

Each monitoring measurement would also be accompanied by its function, program, project, geographic coordinates, and other parameters that will support reporting and analysis.

Recovery Progress Monitoring/ Potential Projects

A third component of the WDP is to monitor recovery progress and develop a list of potential habitat projects that address evolving needs. This will allow entities including WRIAs, Lead Entity regions, Conservation Districts, or recovery regions to assess performance and needs, update plans, and allocate resources based on relevant data. These entities are associated with different legislation, programs, and funding sources. This component of WDP will integrate the strategies for improvement expressed as goals and objectives in entities' plans with current and potential project lists and priorities established by the entities. Ideally, the plans' goals and objectives will be expressed in terms of habitat category and watershed within each WRIA or region to enable clear linkage to projects. Many of the current plans do not have objectives that are specific enough for this task. Most have prioritized geographic areas and habitat categories, and these can be used when specific objectives are not available for habitat recovery.

This linkage between entities' plans and projects based on areas, habitat categories, and priorities is a fairly high level linkage. This linkage, once achieved, would allow recovery progress monitoring at a high level by connecting work done and money spent to prioritized areas and habitat categories. It would not show detailed measurable contributions of projects to objectives (e.g. an objective expressed in feet of stream to be buffered compared to feet actually buffered by projects). It is desirable that the WDP consider whether a system could also support more detailed recovery progress monitoring that would link detailed monitoring measures back to plan objectives. But, this detailed linkage functionality may not be fully demonstrable during the project except as a sample of what could be done.

There are many high level recovery progress monitoring questions that could be addressed with this component:
- Are high priority habitat issues being addressed in this area considering needs and priorities by habitat category?
- How many more barriers (or other interventions by category) are needed to reach the goals and objectives in this area? (can only answer to the extent specificity allows)
- What high priority potential habitat projects should be done next?

Capturing and generating lists of potential projects can be useful for several reasons. It allows tracking to assess whether higher priority projects are being
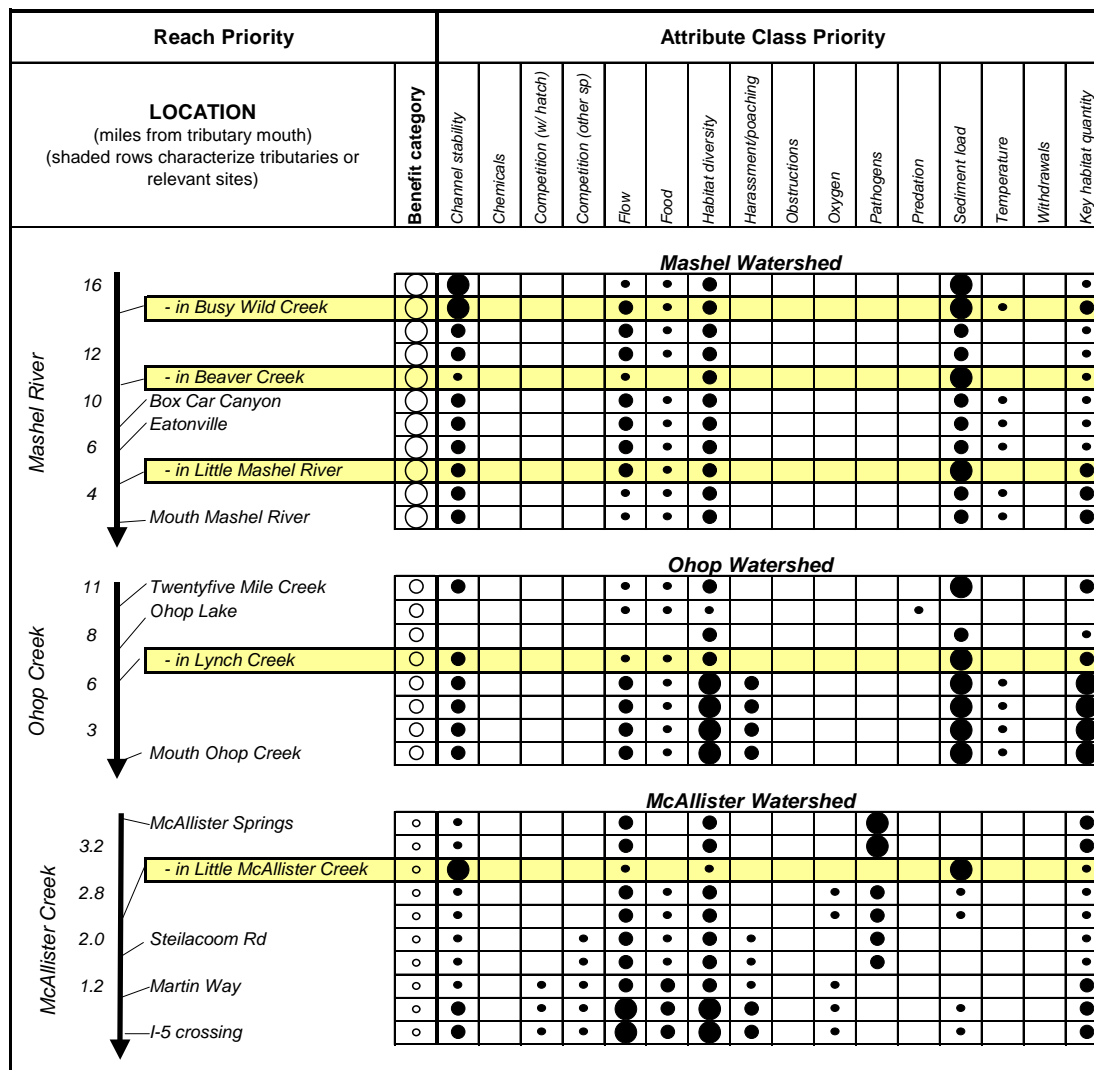
addressed in planning. It will allow more groups to take advantage of funding opportunities that arise quickly with short due dates and allow high priority projects to be targeted. Mitigation actions can be directed towards higher priority projects, when off-site mitigation is allowed.

One example of how plans are expressed in terms of watersheds, habitat categories, and priorities is provided below. It is from the Nisqually Chinook Recovery Plan (Nisqually Chinook Recovery Team 2001).

Nisqually Chinook
Restoration Strategic Priority Summary

Reach Priority		Attribute Class Priority															
LOCATION (miles from tributary mouth) (shaded rows characterize tributaries or relevant sites)	Benefit category	Channel stability	Chemicals	Competition (w/hatch)	Competition (other sp)	Flow	Food	Habitat diversity	Harassment/poaching	Obstructions	Oxygen	Pathogens	Predation	Sediment load	Temperature	Withdrawals	Key habitat quantity

Mashel Watershed — Mashel River: 16, - in Busy Wild Creek, 12, - in Beaver Creek, 10 Box Car Canyon, Eatonville, 6, - in Little Mashel River, 4, Mouth Mashel River

Ohop Watershed — Ohop Creek: 11 Twentyfive Mile Creek, Ohop Lake, 8, - in Lynch Creek, 6, 3, Mouth Ohop Creek

McAllister Watershed — McAllister Creek: McAllister Springs, 3.2, - in Little McAllister Creek, 2.8, 2.0 Steilacoom Rd, 1.2 Martin Way, I-5 crossing

Key to Strategic Priority (Benefit Category letter shown)

	D & E	C	B	A
	Indirect or General	Low / Medium	Medium	High

They have prioritized categories for many different geographic reaches of the basin. The size of the circles relate to the importance or prioritization of each category. The empty circles to the left represent the overall benefit to Chinook salmon for that geographic reach, while the dark circles state the importance of that category. From this, one could infer that a project addressing sedimentation in McAllister Creek would be a lower priority than addressing sedimentation in Ohop Creek. Like this example, and prioritizations and project lists would need to be developed in cooperation with the respective Lead Entity and/or Regional Recovery Board as a derivation from their plans and strategies.

General Habitat Data Collection Specific To Agencies' Needs

The ability to collect effectiveness monitoring measures for component two above would apply to this component. The primary differences anticipated are:
- Monitoring measures would be ties to functions other than habitat projects (e.g. programs, surveys, construction, environmental monitoring, etc.)
- Programs generating the monitoring measures may require different data than the standards for habitat monitoring. Defining those monitoring measures relevant to this repository of watershed and habitat health would be required.

Opportunities for and examples of this type of monitoring are being identified.

Conclusion

The concepts and examples provided in this document are meant to clarify the objectives currently elaborated in the RFI. Specific needs will continue to be defined and will need to be reviewed with the WDP Steering Committee, SWIMTAC, and the Implementation/Effectiveness Monitoring Sub-Committee (an arm of the Monitoring Forum). The third component, which expresses local and regional plans in terms of new layers of measures would need to be developed with cooperation from the Lead Entity or Regional Recovery Board for the conservation district selected for the WDP. Meetings with the committees are scheduled in December and January, where it is hoped that some of the specificities of the first two components will be further clarified. Also, the last proposed WDP component, general habitat data collection, relies upon input from other agencies (WDFW, DOE, and DNR), and examples of their database needs or potential types of monitoring data that could be collected will be available as they are provided. This is also in progress.

Vendor feedback is important to determine how much can be accomplished within the time and budget of the project. We hope that you will consider each of these components and the possibilities that might exist to successfully demonstrate satisfaction of as many of the needs as possible.

Literature Cited

Nisqually Chinook Recovery Team. 2001. Nisqually chinook recovery plan. 68 pp. http://www.sharedsalmonstrategy.org/plan/vol2.htm

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